

CALL FOR PROPOSALS

Process Science Initiative Program

Materials Preparation Center Ames Laboratory

1. Introduction

Proposals are being solicited under a Process Science Initiative (PSI) program recently established in the Materials Preparation Center (MPC) at the Ames Laboratory. The PSI program is open to both DOE and non-DOE laboratory researchers. Program awards will be made to highly rated peer-reviewed proposals, and each award will provide up to \$100,000 in funding for R&D conducted in the Ames Laboratory. The total funding available within the program for fiscal year 2001 is approximately \$250,000. Projects will be funded for a 6- to 12-month performance period, with the maximum funding for a 6-month project being \$50,000. Proposals may be made for continuation of an existing PSI project.

The PSI is intended to provide Laboratory, university and other researchers with the resources needed to implement fundamental or “proof of concept” materials processing projects. These will be projects concerned with the development of fundamental materials processing knowledge, materials process models, or the preparation of “high-risk” novel materials (*i.e.*, projects with a relatively low probability of initial success, coupled with a relatively high potential “pay-off”). The emphasis of the PSI program is science and, accordingly, proposed projects need not be of direct commercial relevance. Moreover, the research results obtained from a PSI-sponsored project must be non-proprietary and are expected to be made available to the public domain in the form of scientific publication(s).

The Ames Laboratory MPC is a DOE “User Facility,” which means that its unique materials synthesis and processing equipment, tools, supplies and facilities, and its specialized personnel, are available to assist laboratory, university, corporate and other researchers (researchers both inside and outside of the Ames Laboratory’s DOE programs). A comprehensive list of MPC equipment and facilities is available on the Web: www.mpc.ameslab.gov.

Successful proposals will utilize the extensive processing capabilities of the MPC, and will involve the collaboration of an Ames Laboratory researcher. Funding for fiscal year 2001 projects will commence on October 1, 2000. The due date for proposals is September 15, 2000.

2. Motivation for the PSI Program

There has been an increasing demand expressed during recent years for basic materials processing science. Specifically, the synthesis of new or improved materials may require new processes, modification or optimization of current practices, or modification of existing equipment. The MPC has been approached by a significant number of DOE laboratory, Ames Laboratory, university and company researchers who recognize both

the need for new scientific knowledge about materials processing and the many unique capabilities the MPC has acquired during its 40 years of successful operations within the DOE materials science community – capabilities which have allowed it to contribute to advances in the materials processing sciences. Indeed, there are very few alternative centers in the United States or the world that researchers can turn to for similar materials processing research capabilities.

The purpose of the PSI is to provide access to facilities and expertise beyond a researcher's current capabilities to pursue either needed basic research in materials processing or the development of a promising new processing technique. In other words, the PSI provides a means to address materials processing problems for which conventional funding is not available. Researchers in Condensed Matter Physics, Materials Science and Physical Chemistry are encouraged to submit proposals utilizing MPC unique capabilities and facilities. High-quality materials and characterization tools may also be covered as part of a research project.

3. PSI Program Format

There exist many opportunities for the MPC to aid in the initiation, or the progress, of research projects that advance materials processing techniques and/or require the synthesis of novel materials. As a result, the MPC's PSI program is open to two (2) types of fundamental process science proposals:

- 3.1** One type encompasses the development of a suitable method for synthesis of a novel material, selecting from the full spectrum of current MPC facilities, equipment, tools, supplies, capabilities and personnel. This type of materials synthesis request may contain a significant level of risk for initial failure (coupled with the promise of a significant scientific or practical "payoff"). This type of proposal shall be termed Type I-Materials Synthesis.
- 3.2** The other type of proposal will be concerned with a fundamental investigation of the mechanisms and models for one of the core materials processing research capabilities of the MPC. It is likely that this type of proposal will arise from practitioners of a processing technique who wish to enhance their level of understanding, and to permit improved process flexibility and effectiveness. This type of proposal shall be termed Type II-Processing Fundamentals.

Regardless of which type of proposal is submitted, the proposed project must fall within the capabilities of the existing MPC facilities and an Ames Laboratory researcher (see www.external.ameslab.gov/Research/index.html) must be involved as a collaborator. The latter is deemed necessary in order to ensure compliance with safety regulations and standard operating procedures and to promote timely progress for the project. Proposals that describe projects outside of the MPC's capabilities will be dropped from further consideration. A further stipulation is that the research results which stem from a proposer's involvement in the PSI program must be non-proprietary in nature and, moreover, must be made available in the public domain in the form of scientific publication(s), preferably peer-reviewed. Published results, in whole or part supported by the PSI program, must also acknowledge this support in an appropriate manner.

Both types of PSI proposals will be allowed to request a maximum of \$100,000 in funding for a 1-year project or \$50,000 for a 6-month project. Funding is subject to overhead and the project will be budgeted according to Ames Laboratory procedures. Proposed projects should have a start date of October 1, 2000, and a completion date of either September 30, 2001 or March 31, 2001.

The success of proposals will depend on peer-reviewed scientific merit, suitability of MPC facilities for the proposed project, recruitment of an Ames Laboratory collaborator (which can be facilitated by the PSI Program Manager, if needed), and the appropriateness of the project to fundamental Basic Energy Science (BES) objectives (see www.er.doe.gov/production/bes). Once a proposal is approved, appropriate internal administrative review will be provided and a detailed budget will be developed by the PSI Program Manager with assistance from the Ames Laboratory Budget Office.

Proposers are encouraged to seek outside research partner(s), as a demonstration of interest in the project, and to provide additional support through partner efforts or resources. Typical types of partner effort could include: the provision of unique starting materials, the loan of specialized equipment or instrumentation, or property-based materials characterization. Such support would be considered in the proposal evaluation process after the criteria for scientific merit and technical approach. It is stressed that the goal of the PSI program is the development of basic knowledge in the materials processing sciences, and that the results of this are meant to be non-proprietary in nature. Any outside research partners should be thoroughly apprised of the “basic” and “non-proprietary” nature of the program before they contribute funding or other resources to the project, and any research partners will be required to execute a standard PSI/MPC user agreement with the MPC before the commencement of any work. The agreement stipulates the terms and conditions for the interaction (including the requirement to publish the results). The basic structure of the agreement is provided at the end of this document.

Undergraduate and graduate students will be utilized to perform work, whenever possible, to provide the maximum educational and training benefit for each project. Proposers and guest researchers will be permitted to participate in on-site experimental activities for additional educational and technology transfer benefit, if safety considerations and work schedules permit and the requirements of the Ames Laboratory visitor program are met. Travel expenses for visiting researchers, students, or both, may be included in the budget. Note, however, that the PSI program will not provide salary support for non-Ames Laboratory researchers.

Researchers will be required to submit a final report at the completion of their PSI-sponsored project.

4. PSI Proposal Content

The PSI proposal should be no longer than five typed pages (not including cover page given at the end of this document and one-page resumes of the Principal Investigators). A page is defined as 8.5x11-inch paper, single-sided, with one-inch margins, and a typeface of 10- or 12-pitch. Proposals are due September 15, 2000, and should address the following items:

1. **SCIENTIFIC AND/OR TECHNICAL BACKGROUND.** Explain the importance of the scientific question(s) or technological problem(s). Identify the areas in which the proposal demonstrates innovation or uniqueness, advancing the development of fundamental materials processing knowledge, materials process models, and the preparation of “high-risk” novel materials. Identify areas of the proposal that have already been explored, and the way the proposal complements or advances these efforts.

In the case of a proposal submitted by an Ames Laboratory researcher (*i.e.*, an “internal” proposal), it is important to explain why the proposed work cannot be conducted under current projects or other available resources.

2. **PROPOSED METHOD(S) OR TECHNICAL APPROACH(ES).** State the technical objectives and the desired results stemming from the proposed PSI project. Discuss the plan-of-work that will allow the project to achieve its desired objectives, with emphasis on how the technical approach and analyses will address the questions or problems identified. In addition, state what is the probability of important results or new understanding emerging from this work, and project the relationship between this project and future R&D efforts.
3. **PERSONNEL AND MPC RESOURCES TO BE USED.** Briefly describe the qualifications and availability of the principal investigator and of other key researchers involved in the project. Include a one-page curriculum vita for each. If possible, identify and recruit a collaborating Ames Lab/MPC researcher. Describe the time commitments for these personnel within the proposed work plan. The use of state-of-the-art analysis methods, simulation and modeling, and computer techniques is encouraged but is not a requirement.

Also describe the facilities, equipment, tools, supplies and staff capabilities required from the MPC in order to facilitate the project and its plan of work. Proposers are encouraged to visit the MPC and its Director in order to investigate both Ames Laboratory collaborators and MPC capabilities.

4. **APPROXIMATE BUDGET.** Include budget items such as in-kind personnel time, and materials and supplies needed by the MPC. The budget needs only to be approximate. A more detailed budget, with the appropriate overheads, will be established in consultation with MPC staff upon success of a proposal. Note again that funding is contained within Ames Laboratory and, accordingly, funding is not available to support the salary of outside researchers.

5. Proposal Submission

The original and four copies of the proposal are due into the MPC office by 5:00 pm on September 15, 2000.

PSI Program
Materials Preparation Center
Ames Laboratory
121 Metals Development Building
Ames, IA 50011-3020

Subject to seeing the actual number of proposals submitted to this PSI call, PSI program staff currently expect that proposal reviews will be completed within ten (10) working days of the closing date. Should there be any need for an extension, PSI staff will contact those who have submitted proposals to inform them of the expected decision-date. Those who write successful proposals will be notified directly by PSI program staff, and the list of awardees will be posted both on the MPC web site and outside the MPC Manager's office. Others may request an informal de-briefing from PSI staff.

6. Further Information

The MPC (phone 515-294-5236) will be the contact point for general information regarding the PSI program. Specific questions pertaining to the PSI program should be directed to Brian Gleeson, PSI Program Manager, phone (515) 294-5604, FAX (515) 294-5441, or email bgleeson@iastate.edu.

Process Science Initiative Request
(To be completed by scientist)

Institution Name _____

Institution Contact (Name) _____

Address _____ City, State, Zip _____

Telephone No. _____ Fax No. _____ E-Mail _____

Check one ☐ Type I Proposal–Materials Synthesis ☐ Type II Proposal–Processing

Fundamentals

Provide sufficient detail to enable Ames Laboratory to determine the appropriateness for assistance

PROPOSAL SHOULD INCLUDE: A DESCRIPTION OF AND BACKGROUND TO THE TECHNICAL PROBLEM; DESIRED RESULTS; SOLUTIONS THAT HAVE ALREADY EXPLORED (IF ANY); DESCRIPTION OF PERSONNEL AND REQUIRED RESOURCES; AND AN APPROXIMATE BUDGET.

Have you already identified an Ames Laboratory investigator to work with? _____

Investigator)

(Contact Name – AL Principal

Note: If PSI is approved, maximum Ames Laboratory expenditure is \$100,000.

Ames Laboratory Use Only

ES&H Review: The proposed project contains NO new or significantly modified activities that have ES&H issues.

(Principal Investigator Signature)

(PI's Program Director Signature)

Date Received: _____ Date Approved: _____ Date Completed: _____

Authorization _____

Larry Jones, MPC Director

Process Science Initiative Proposal Agreement

Mr./Ms./Dr. _____ ("Requester"), with a principal place of employment at: _____

seeks processing science funding from the Ames Laboratory ("AL"), Materials Preparation Center ("MPC"), to perform a "Processing Science Project" (PSP) as proposed in the attached "Process Science Initiative Request" document.

1. Requester represents that the proposed project is unique and original research that cannot be obtained in a reasonable manner from private facilities on an independent, convenient, or timely basis, based on a documentable search procedure performed by the requester. This search for alternative facilities can be facilitated by the MPC Director or the PSI Program Manager, if requested.
2. Requester shall report the results of the research performed under the PSI program in the scientific literature, preferably peer-reviewed, with appropriate acknowledgements to the DOE for funding under the PSI program and in a timely manner, but not to jeopardize patentability of any Subject Inventions conceived under this agreement. A summary final project report also must be submitted within one month from the conclusion of the project.
3. Employees of AL performing under this Agreement remain AL employees, and any invention(s) made by those employees are governed by provisions of AL's prime contract W-7405-ENG-82 with the U.S. Department of Energy ("DOE").

Each Party performing a PSP under this agreement within the Ames Laboratory/MPC shall have the first option to retain title to any Subject Inventions solely made by its employees during the work on a PSP performed within the Ames Laboratory/MPC under this Agreement. The Parties agree to disclose to each other each and every Subject Invention, which may be patentable or otherwise protectable under the Patent Act. The Parties acknowledge that the Requester and Ames Laboratory will disclose Subject Inventions to the DOE within two (2) months after the inventor first discloses the Subject Invention in writing to the person(s) responsible for patent matters of the disclosing Party. If a Party elects not to retain title to any such Subject Invention of its employees, then the other Party shall have the option of electing to retain title to such Subject Inventions under this Agreement.

The Parties acknowledge that the DOE may obtain title to each Subject Invention reported under this Article for which a patent application is not filed, a patent application is not prosecuted to issuance, or any issued patent is not maintained by any Party to this Agreement. The Government shall retain a nonexclusive, nontransferable, irrevocable, paid-up license to practice, or to have practiced, for or on its behalf all Subject Inventions under this Agreement throughout the world. For Subject Inventions conceived or first actually reduced to practice under this Agreement which are joint Subject Inventions made by the Requester and Ames Laboratory, title to such Subject Inventions shall be jointly owned by the Requester and Ames Laboratory.

4. AL does not and will not have comprehensive knowledge of the uses that the Requester will make of the Process Science project results or experimental materials. Requester assumes all responsibility to conduct whatever survey, studies, test samplings, and other activities are needed to ensure the marketing and ultimate use of safe, efficient and reliable products and services.
5. In partial consideration of AL's assistance, the Requester agrees to hold harmless AL, ISU, DOE, and their respective employees from any liability or claim alleged to arise from the conduct of the project.
6. The Parties expect that processing science studies can be provided without the Requester disclosing proprietary information. Should a need arise to exchange proprietary information, an appropriate nondisclosure agreement will be executed.

Process Science Initiative Proposal Agreement (cont.)

7. Neither AL, nor ISU, nor DOE, nor persons acting on their behalf are liable for any injury to or death of persons or other living things or damage to or destruction of property or for any other loss, damage, or injury of any kind whatsoever, including costs and expenses incurred resulting from discussions, meeting, visits, or any activities or interactions conducted by AL to provide processing science studies, advice or other services to the Requester under this Agreement.
8. **Neither AL, nor ISU, nor DOE, nor persons acting on their behalf make any warranty, express or implied: (a) with respect to the merchantability, accuracy, completeness, or usefulness of any services, materials, or information they furnish; (b) that the use of such services, materials or information may not infringe privately owned rights; or (c) that the services, materials, or information they furnish will be adequate or safe for any purpose or will accomplish the intended results or purpose. Furthermore, AL, ISU, and DOE specifically disclaim any and all warranties, express or implied, for any products manufactured, used or sold by Requester. Neither AL, nor ISU, nor DOE are liable for special, incidental or consequential damages in any event.**
9. Any modification in the terms of this Agreement is valid only if the modification is made in writing and executed by the parties to this Agreement.
10. Requester shall promptly comply with AL's reasonable requests for information such as reports, publications etc. as to the outcome of the Process Science Initiative Funding.
11. AL expects the investigator to complete the work plan of the proposal on a timely basis, but AL reserves the right to preempt or delay this work. AL or the Requester may also terminate this Agreement at any time, but paragraphs 3, 4, 6, 7, 9 and 11 survive any termination.
12. Requester must acquire AL's authorized written permission to use AL's name.

Company Official

By _____
(Signature)

Name _____
(Please Print)

Title _____
(Please Print)

Ames Laboratory

By _____
(Signature)

Name _____
(Please Print)

Title _____
(Please Print)